***** CONFIDENTIAL PREDECISIONAL DOCUMENT *****

SUMMARY SCORESHEET
FOR COMPUTING PROJECTED HRS SCORE

SITE NAME: Chemonics Laboratory Division McKenzie

CITY, COUNTY: Phoenix, Maricopa

EPA ID #: AZD057907883 **EVALUATOR:** Debi Malone

PROGRAM ACCOUNT #: 0376 **DATE:** August 20, 1993

Lat/Long: 33 27' 15"/ 112 04' 45" **T/R/S:** (A 01-03)09 CBB

THIS SCORESHEET IS FOR A: **PA** _____ **SSI** X **LSI** _____

SIRe_____ **PA Redo**_____ **Other (Specify)**_____

RCRA STATUS (check all that apply):

X Generator _____Small Quantity Generator _____Transporter ____
TSDF

_____Not listed in RCRA Database as of (date of printout) 07/1993

STATE SUPERFUND STATUS:

_____ BEP (date) _____ X WQARF (date) _____

_____ No State Superfund Status (date) _____

	S Pathway	S^2 Pathway
Groundwater Migration Pathway Score (S_{gw})	0.24	0.058
Surface Water Migration Pathway Score (S_{sw})	*	*
Soil Exposure Pathway Score (S_s)	0.61	0.372
Air Migration Pathway Score (S_a)	3.21	10.30
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		10.73
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$	XXXXXXXXXX	2.683
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$	XXXXXXXXXX XXXXXXXXXX	1.640

* Pathways not assigned a score (explain):
*1 No surface water migration *

GROUNDWATER MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

Likelihood of Release	Maximum Value	Projected Score	Rationale	Date Qual.
1. Observed Release	550	0	1	H
2. Potential to Release				
2a. Containment	10	10	2	H
2b. Net Precipitation	10	1	3	H
2c. Depth to Aquifer	5	3	4	H
2d. Travel Time	35	25	5	H
2e. Potential to Release [(Lines 2a x (2b+2c+2d)]	500	290		
3. Likelihood of Release (Higher of lines 1 or 2e)	550	290		
Waste Characteristics				
4. Toxicity/Mobility	a	10	6	H
5. Hazardous Waste Quantity	a	10	7	D
6. Waste Characteristics (lines 4 x 5, then use Table 2-7)	100	3	8	D
Targets				
7. Nearest Well	50	9	9	H
8. Population				
8a. Level I Concentrations	b	0	10	H
8b. Level II Concentrations	b	0	11	H
8c. Potential Contamination	b	8.8	12	E
8d. Population (lines 8a+8b+8c)	b	8.8		
9. Resources	5	5	13	H
10. Wellhead Protection Area	20	0	14	H
11. Targets (lines 7+8+9+10)	b	22.8		
Likelihood of Release				
12. Aquifer Score [(Lines 3 x 6 x 11)/82,500]^{c}	100	0.24		

Groundwater Migration Pathway Score

13. Pathway Score (Sgw), (highest value from line 12 for all aquifers evaluated)	100	0.24^{c}		

a Maximum value applies to waste characteristics category.
b Maximum value not applicable
c Do not round to the nearest integer.
d Use additional tables

Aquifer Evaluated All

GROUNDWATER PATHWAY CALCULATIONS

8. Population

Actual Contamination

Potential Contamination

Distance (Miles)	Total Number of Wells Within Distance Ring	Total Population Served by Wells Within Distance	Distance-Weighted Population Values "Other Than Karst" (Table 3-12) Ring (A)
0 to 1/4	0	0	0
>1/4 to 1/2	0	0	0
>1/2 to 1	1	87	17
>1 to 2	1	23	3
>2 to 3	2	570	68
>3 to 4	0	0	0
		Sum (A)	88

Potential Contamination = $\frac{\text{Sum (A)}}{10}$ = 8.8

* For drinking water wells that draw from a karst aquifer, see the Distance-Weighted Population Values for "Karst" in Table 3-12.

Aquifer Evaluated ALL

SOIL EXPOSURE PATHWAY SCORESHEET

Factor Categories and Factors

RESIDENT POPULATION THREAT

	Likelihood of Exposure	Maximum Value	Projected Score	Rationale	Data Qual.
1.	Likelihood of Exposure	550	550	1	E
	Waste Characteristics				
2.	Toxicity	a	10,000	2	H.
3.	Hazardous Waste Quantity	a	10	3	H, E
4.	Waste Characteristics	100	18	4	E
	Targets				
5.	Resident Individual	50	0	5	H
6.	Resident Population				
	6a. Level I Concentrations	b	0	6	H
	6b. Level II Concentrations	b	0	6	H
	6c. Resident Population (lines 6a+6b)	b	0		
7.	Workers	15	5	7	H
8.	Resources	5	0	8	H
9.	Terrestrial Sensitive Environments	c	0	9	
10.	Targets (lines 5+6c+7+8+9)	b	5		
	Resident Population Threat Score				
11.	Resident Population Score (lines 1 x 4 x 10)	b	49500		

NEARBY POPULATION THREAT

	Likelihood of Exposure				
12.	Attractiveness/Accessibility	100	5	10	H
13.	Area of Contamination	100	20	11	H
14.	Likelihood of Exposure	500	5	12	H
	Waste Characteristics				
15.	Toxicity	a	10,000		
16.	Hazardous Waste Quantity	a	10		
17.	Waste Characteristics	100	18		
	Targets				
18.	Nearby Individual	1	1	13	H
19.	Population Within 1-Mile[e]	b	16.2	14	E
20.	Targets (lines 18+19)	b	13.2		

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SOIL EXPOSURE CALCULATIONS

20. Nearby Population Targets

Distance (miles)	Total Population Within Distance Ring	(P) Distance-Weighted Population Values (Table 5-10)
0 to 1/4	992	0.13
>1/4 to 1/2	993	7
>1/2 to 1	11,836	102
	Sum (P)	122

Nearby Population Threat factor value $\frac{\text{Sum (P)}}{10}$ = 12.2

SOIL EXPOSURE PATHWAY SCORESHEET (CONTINUED)

Factor Categories and Factors

	Nearby Population Threat Score	Maximum Value	Projected Score	Rationale	Data Qual.
21.	Nearby Population Threat (lines 14 x 17 x 20)	b	1188		

SOIL EXPOSURE PATHWAY SCORE

22.	Soil Exposure Pathway Score (Ss), [lines (11+21)/82,500 subject to a maximum of 100]	100	0.61 [d]	

a Maximum value applies to waste characteristics category.
b Maximum value not applicable.
c No specific maximum value applies to this factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
d Do not round to the nearest integer.
e Use additional tables.

AIR MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Maximum Value	Projected Score	Rationale	Data Qual.
Likelihood of Release				
1. Observed Release	550			
2. Potential to Release[e]				
2a. Gas Potential	500	340	1	E
2b. Particulate Potential	500	[illegible]	2	E
2c. Potential to Release (higher of lines 2a and 2b)	500	340		
3. Likelihood of Release (higher of Lines 1 or 2c)	550	[illegible]	3	E
Waste Characteristics				
4. Toxicity/Mobility	a	20	4	H
5. Hazardous Waste Quantity	a	10	5	H
6. Waste Characteristics (lines 4 x 5, then use Table 2-7)	100	6		H
Targets				
7. Nearest Individual	50	20	6	H
8. Population[e]				
8a. Level I Concentrations	b	0		H
8b. Level II Concentrations	b	0		H
8c. Potential Contamination[e]	b	93.2	7	E
8d. Population (8a+8b+8c)	b	93.2		
9. Resources	5	0	8	H
10. Sensitive Environments[e]				
10a. Actual Contamination	c	0	9	H
10b. Potential Contamination	c	0		
10c. Sensitive Environments (lines 10a+10b)	c	0		H
11. Targets (Lines 7+8d+9+10c)	b	113.2		
Air Pathway Migration Score				
12. Air Pathway Score (Sa) [(lines 3 x 6 x 11)/82,500]	100	3.21[d]		

a Maximum value applies to waste characteristics category.
b Maximum value not applicable.
c No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
d Do not round to nearest integer.
e Use additional tables.

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AIR PATHWAY CALCULATIONS

2. Potential to Release

Gas Potential to Release

	Source Type (Name)	Gas Containment Factor Value (Table 6-3)	Gas Source Type Factor Value (Table 6-4)	Gas Migration Potential Factor Value (Table 6-7)	Sum	Gas Source Value
		(A)	(B)	(C)	(B+C)	A x (B+C)
1.	cyanide	10	28	6	34	340
2.						
3.						
4.						

Gas Potential to Release Factor Value (Select the highest Gas Source Value): _____

Particulate Potential to Release

	Source Type (Name)	Particulate Containment Factor Value (Table 6-9)	Particulate Source Type Factor Value (Table 6-4)	Particulate Migration Potential Factor Value (Figure 6-2)	Sum	Particulate Source Value
		(A)	(B)	(C)	(B+C)	A x (B+C)
1.	uranc	10	22	17	39	390
2.						
3.						
4.						

Particulate Potential to Release Factor Value (Select the highest Particulate Source Value): 390

AIR PATHWAY CALCULATIONS (CONTINUED)

8. Potential Contamination

Distance (miles)	Total Population Within Distance Ring	(A) Distance-Weighted Population Value (Table 6-17)
On site (0)	60	53
>0 to 0.25	992	131
>0.25 to 0.5	993	28
>0.5 to 1	11836	261
>1 to 2	33704	266
>2 to 3	30777	120
>3 to 4	40,000	73
	Sum of (A) =	932

Air Potential Contamination Factor Value = $\frac{\text{Sum of (A)}}{10}$ = 93.2

10. Sensitive Environments

. Actual Contamination

Wetland or Type of Sensitive Environment	(A) Sensitive Environment Rating Value (Table 4-23)	(B) Wetland Rating Value (Table 6-18)	(A + B)

Actual Contamination Factor Value [sum (A + B)] _____

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AIR PATHWAY CALCULATIONS (CONTINUED)

Potential Contamination

Wetland or Type of Sensitive Environment	(A) Sensitive Environment Rating Value (Table 4-23)	(B) Wetland* Rating Value (Table 6-18)	Distance (miles)	(DW) Distance Weights (Table 6-15)	DW x (A + B)
			Sum DW x (A + B)		

Potential Contamination
Sensitive Environments Factor Value = $\frac{\text{Sum DW x (A + B)}}{10}$ = _____

* Only assign a Wetland Rating Value once for each wetland within a distance category.

RATIONALE FOR HRS FOR CHEMONICS LABORATORY DIVISION MCKENZIE

Groundwater Pathway

1. An observed release is not documented nor is one projected due to no analytical data to concur with a release attributable to this site.

2. The assigned value of 10 for Containment from HRS Table 3-2.

3. The assigned value for Net Precipitation is 1 from HRS Figure 3-2.

4. The depth to groundwater at the site is calculated from the bottom of the drywells (25 feet bgs) to the top of the aquifer at approximately 80 feet. The assigned value from HRS Table 3-5 is 3.

5. The assigned hydraulic conductivity from HRS Table 3-6 is 10^{-4} cm/sec. HRS Table 3-7 gives us a Travel Time of 25.

6. The toxicity/mobility is assigned for Toxaphene; (1,000)(0.01) gives us a value of 10.

7. The Hazardous Waste Quantity defaults to 10.

8. The Waste Characteristics value from HRS Table 2-7 is 3.

9. The Nearest Well is between 1/2 and 1 mile from the site; the assigned value from HRS Table 3-11 is 9.

10. There are no Level I Concentrations.

11. There are no Level II Concentrations.

12. The Potential Contamination value from the worksheet is 8.8. This varies greatly from the score calculated in the PA. The entire metropolitan population was used to attribute people to the counted wells. This rationale calculated the actual people per pumping well that is within the 4 mile radius of the site.

13. The aquifer is used as a resource for irrigation; thus the value assigned per HRS Section 3.3.3 is 5.

14. There are no Wellhead Protection Areas in Region 9. Therefore the value assigned is 0.

This pathway does not score like it did in the PA due to inaccurate geographic and hydrologic data being used in the PA. The PA was also done when the old HRS Criteria was used; the new HRS doesn't allow the pathway to now score.

SOIL PATHWAY

CHEMONICS

1. There is analytical soil data for chlorinated pesticide contamination at the site.

2. The toxicity value is 10,000 for lindane, one of the pesticides detected at the site.

3. The Hazardous Waste Quantity defaults to 10.

4. Waste Characteristics assigned from HRS Table 2-7 is 18.

5. There is no Resident Individual as defined by HRS.

6. There is no Resident Population affected by Level I or Level II contamination concentrations.

7. There are approximately 60 persons working at the site; the assigned value from HRS Table 5-4 is 5.

8. There is no affected Resources as identified by HRS Section 5.1.3.4.

9. There are no Terrestrially Sensitive Environments.

10. The Attractiveness/Accessibility value assigned is 5 since the site is fenced.

11. The area of pesticide contamination is estimated to be 75,000 square feet; so the assigned value from HRS Table 5-7 is 20.

12. The Liklihood of Exposure value from HRS Table 5-8 is 5.

13. The Nearest Individual per HRS Table 5-9 is 0-1/4 mile so the assigned value is 1.

14. The population within 1 mile using Target Population calculation makes the Threat Factor 12.2.

AIR PATHWAY

1. Since solvents were used on site, the Gas Potential to Release is calculated to give a value of 340.

2. Lindane was used to calculate Particulate Potential To Release; the value is 390.

CHEMONICS AIR PATHWAY CONTINUED

3. The Liklihood of Release is the Particulate Potential Value of 390.

4. The Toxicity value for Lindane is 10,000. The mobility factor is 0.2 from Figure 6-3 of the HRS. The assigned value is then 200.

5. The Hazardous Waste Quantity value defaults to 10.

6. The nearest individual is approximately 1/8 mile; Table 6-16 gives the assigned value of 20.

7. The population is calculated from Table 6-17 and the assigned factor value is 93.2.

8. There are no Resources as defined by HRS.

9. There are no sensitive environments as defined by HRS.

Due to the pesticide contamination obviously present at this site and that this site will not score under current HRS criteria; this site would be an ideal candidate for the SACM Process.